HMIS

STANDARD OPERATING PROCEDURES

Ministry of Health

February 2022

TABLE OF CONTENTS

LIST OF ABBREVIATIONS 4

DEFINITION OF TERMS 4

1.0 INTRODUCTION 5

1.1 BACKGROUND & OVERVIEW 5

1.2 ABOUT THE DOCUMENT 5

1.3 DISSEMINATION 6

2.0 DATA MANAGEMENT SYSTEM 6

2.1 PREAMBLE 6

2.2 DATA PROTECTION 6

2.3 DATA SECURITY 7
Security of Non-Electronic Data 7
Security of Electronic Data 7

3.0 DATA COLLECTION AND REPORTING 8

3.1 DATA COLLECTION TOOLS 8

3.2 DATA COLLECTION PROCEDURE 10

3.3 DATA REPORTING PROCEDURE 10
At Health Facility Level 10
At District Level 11
At Regional Level 11
At State Level 12

3.4 LATE REPORTS 12

3.5 DATA SUMMARY REPORTS 12

4.0 DATA QUALITY AUDITS 13

4.1 OVERVIEW 13

4.2 DQA OBJECTIVES 13

4.3 DQA DATA MANAGEMENT 14

4.4 DQA STANDARD PROCEDURES 15
Preparing for DQA 15
Conducting DQA 15
DQA Timelines 16

4.5 DQA ASSESSMENT REPORT 16

4.6 DQA SCORECARD 17

4.7 STAFF ROLES AND RESPONSIBILITIES IN DQA 17
Health Facility Staff and MOH Managers 18
Health Facility Records Officers 18
Health Management and Information Officers 18
Implementing Partners – Data & Program Officers 18

5.0 DATA DEMAND & USE 19

5.1 DATA UTILIZATION AT FACILITY LEVEL *20*

5.2 DATA ANALYSIS AT DISTRICT / REGIONAL / NATIONAL LEVEL *21*
5.2.1. Overview 21
5.2.2 Basic Epidemiological Concepts 22

5.3 DATA ANALYSIS AND PRESENTATION *25*
Conduct a Data Quality Check 25
Date Analysis & Presentation 25
Date of Data Analysis 25

6.0 RESPONSIBILITIES FOR INDIVIDUAL STAFF CATEGORIES **29**

7.0 FUTURE CONSIDERATIONS **29**

7.1 HMIS UPDATE *29*

7.2 ELECTRONIC DATA CAPTURE *29*

8.0 ANNEXES **31**

ANNEX 8.1: DISTRICT DATA LOG *32*

ANNEX 8.1 b: DISTRICT PERFORMANCE *33*

ANNEX 8.2: REGIONAL DATA LOG *34*

ANNEX 8.2 b: REGIONAL PERFORMANCE *35*

ANNEX 8.3: NATIONAL DATA LOG *36*

ANNEX 8.3 b: NATIONAL PERFORMANCE *37*

ANNEX 8.4: DQA TEMPLATE *38*

ANNEX 8.5: DQA LOG *39*

ANNEX 8.6: SCORECARD *40*

ANNEX 8.7: SUPPORTIVE SUPERVISION TOOL *41*

ANNEX 8.8: DATA VISUALISATION *42*

ANNEX 8.9: MENTORSHIP GUIDELINES *43*
BACKGROUND 43
GOALS AND OBJECTIVES OF MENTORSHIP 43
MENTOR AND MENTEE 44
MENTORSHIP PROCESS 44
HMIS MENTORSHIP 44

LIST OF TABLES AND FIGURES

TABLE 1: DHIS2 REGISTERS (DEC 2021) 8
TABLE 2: DHIS2 SUMMARY SHEETS (DEC 2021) 9
TABLE 3: FLOW OF PATIENT DATA 10
TABLE 4: DATA QUALITY DIMENSIONS 13
TABLE 5: INDICATORS & CORRESPONDING DATA SOURCES PER PROGRAM AREA 14
TABLE 6: DATA VALIDATION RULES FOR DHIS DATA ENTRY 14
TABLE 7: DQA/SCORE CARD COLOR-CODES 17
TABLE 8: SOMALIA NATIONAL INDICATORS (EXCERPT) – **AVAILABLE IN DHIS** 20
TABLE 9: RELEVANT EPIDEMIOLOGY TERMS 22
TABLE 10: EXAMPLE FOR HMIS DATA ANALYSIS PLAN 26
TABLE 11: RESPONSIBILITIES PER STAFF CATEGORY 29

FIGURE 1: AN APPROACH TO ENHANCE DDU CAPACITY TO IMPROVE DATA DEMAND AND USE. 19

LIST OF ABBREVIATIONS

CDQ	Continuous Quality Assurance
DDU	Data Demand & Use
DHIS	District Health Information Software
DQA	Data Quality Assessment / Audit
HF	Health Facility
HIS	Health Information System
HMIS	Health Management Information System
M&E	Monitoring & Evaluation
MFL	Master Facility List
MOH	Ministry of Health
SOP	Standard Operating Procedures

DEFINITION OF TERMS

Data Elements	Data collected at health facility level.
Data Analysis	Process of inspecting, cleaning, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision making.
Data Demand & Use	Strategy to identify opportunities for and constraints to effective & strategic data collection, availability, analysis, and use.
Data Quality	Measure of the condition of data based on accuracy, completeness, consistency, reliability and whether it is up to date.
Data Quality Assessment / Audit	Process of scientifically & statistical evaluating data to determine its validity, identify incorrect data and implement corrective action.
Evaluation	Periodic assessment of the quality, relevance, and impact.
HMIS	System for the collection, collation, analysis, presentation, utilization, and dissemination of health data / information.
Indicators	Calculated formula based on a combination of data elements and a core element of data analysis.
Information	Processed, organized & structured data.
Monitoring	Systematic and periodic process of collecting, analyzing, and using information to track a program's progress from planning stage to completion.

1.0 INTRODUCTION

1.1 BACKGROUND & OVERVIEW

Health information is one of the six building blocks of a health system. A well-functioning health information system supports the delivery of health services by ensuring the production, analysis, dissemination, and use of reliable and timely information on health determinants, health system performance and health status.[1]
In early 2020, the need to revise the national list of health indicators was expressed in the Health Sector Coordination Meeting. While reviewing the list of indicators between August and December 2020, it was observed that some of the desired indicators were not being captured by the existing HMIS tools and those indicators were added accordingly. This in turn prompted the review and update of the existing data collection tools / registers and summary sheets. Revision of the HMIS tools took place between August 2020 and December 2021. Review workshops of the proposed indicators and data collection tools were held with MOH and other stakeholders in Mogadishu, Hargeisa and Garowe with the aim to review draft tools and provide the Oslo experts with feedback on areas of improvement. The draft tools were then shared with the stakeholders for final inputs before submitting for HSC endorsement in December 2021.
All public health facilities are provided with the updated standard registers and summary forms for HMIS data. The inside covers of the revised HMIS tools contain standard guidelines on the collection and reporting of HMIS data. The tools are identical irrespective of the level of service delivery, except for inpatient / outpatient services (separate for hospitals, HC and PHUs) and LMIS / Supply (hospital & HCs vs. PHUs).
In addition, the reporting and data collation for nutrition, HIV, TB, IDSR, Supply / LMIS, and HR has now also been integrated into DHIS.
Going forward, the focus is now on data quality, data analysis, and data presentation & use for monitoring and planning at all levels.

1.2 ABOUT THE DOCUMENT

This document serves multiple purposes:

- It describes the procedures for data collection, data management and **these procedures apply to both public and private facilities.**

Security procedures for routine health management information system (HMIS) data should be collected, recorded, and managed in accordance with the Ministry of Health policies to protect patient confidentiality. This document aims at ensuring that quality data is collected in a more efficient way by describing how to carry out operations correctly and consistently. Following these procedures will help in achieving uniformity in carrying out HMIS activities. This document should therefore be available at every unit where HMIS data is either being generated, aggregated, or analyzed, be it a public or private HF.

[1] Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action. World Health Organization 2007; ISBN 978 92 4 159607

- It describes the steps required to prepare for and conduct DQA and presents templates to be used in DQA process.
- It gives guidelines for basic data analysis, interpretation and presentation using selected indicators from the national HMIS indicators list.
- It complements the national HMIS tools users' manual, hence the two should be used together.

1.3 DISSEMINATION

The SOP should be disseminated as follows: the FMOH / SMOH HMIS teams are trained first and then facilitating the training the regional teams, who will in turn train the district teams. The latter should then train and mentor the HF teams of each facility in their district / area to complete the cascade.

2.0 DATA MANAGEMENT SYSTEM

2.1 PREAMBLE

- There should be a trained HMIS focal person at all levels where HMIS data is either generated, aggregated, or processed.
- Each facility should have a unique code from the DHIS master facility which is issued and maintained by national HMIS office. The code should be indicated on all HF HMIS tools. Having an MFL is important for establishing the exact number of HFs, and for resource allocations including supportive supervision.
- All HMIS data should be collected using the updated standard health facility registers. The inside cover of all registers clearly explains how data should be collated and the instructions have also been translated into Somali. This is hoped to minimize data collection and reporting errors.
- Data should be summarized using standard monthly summary forms. The forms contain guidelines, both in English and Somali, on how to summarize data from the various registers.

2.2 DATA PROTECTION

All person-identifiable data must be treated with utmost confidentiality.

1. Patient records should be accessible only to a minimum number of authorized people and those who need access to ensure delivery of medical services.
2. All staff accessing medical data shall be made aware of their responsibility to maintain patient confidentiality. Staff should undertake an initial training prior to assignment and regular refresher trainings. The latter should include data ethics especially with regards to the handling of patient data.
3. Data containing patient names (Registers / Tracker App) should not be transmitted in a way that could allow unauthorized interception. This includes sending email attachments, as well as flash disk and CD-ROMS containing patient data by postal or courier services.

4. Patient data should be analyzed at health facilities level, where it is generated, and only the summarized data (summary sheets) should then be shared and distributed.

ALL MEDICAL DATA SHOULD BE SECURELY STORED TO SAFEGUARD AGAINST UNAUTHORISED ACCESS

2.3 DATA SECURITY

Security of Non-Electronic Data

HMIS data should be securely stored at all levels, including health facility level.

1. Data should be securely stored at health facility level, preferably lockable metallic or wooden cabinets.
2. The most current health files (last 3 years) should be kept within the records office while files older than 3 years should be safely archived.
3. Data should be stored chronologically and alphabetically using clear labels to ease retrieval. For example, January 2022 reports should be adjacent December 2021 reports while Bay region should appear before Sool in the filing cabinet.
4. Anyone seeking access to the aggregated HF data should obtain permission from the national, regional or district health offices or the HF manager in-charge. Such request should include the reason why data is being requested, the variables and period of interest.
5. Anyone seeking access to patient-level records from HF registers should obtain written permission from the national HMIS office. Such request should include the reason why data is being requested, the variables and period of interest. Exceptions to this requirement include supportive supervision / mentorship visits by relevant authorities.

Security of Electronic Data

Electronic data should only be stored on devices that are routinely and securely backed up:

1. A daily back up of data is recommended. This should be done on the computer's hard-disk AND an external hard disk.
    - A weekly backup should be done on a CD-ROM or external hard drive or Cloud. This should be kept in a separate location.
    - To reduce risk of overwriting newer files with old data, names of electronic files should include the date the file was last saved.
2. Data for analysis should be anonymized and contain only minimum personal identifiers necessary for analysis such as age, sex, and geographic location. Patient names, DOB, mobile phone numbers, etc. should never appear in the summary tools or reports of analyzed data.
3. Patient data must not be stored or transmitted on removable media or laptops without encryption.
4. Computers used to enter or access data should have updated anti-virus software to safeguard against data corruption and phishing.

5. Access to personalized data should be limited to authorized personnel. Each user of the system should have a password protected individual account and passwords must not be shared between users.
6. Assignment of access rights to DHIS should be handled by the national HMIS coordinator. S/He should keep a record of authorized users and their access levels.
7. Users should be advised against sharing their database login details with anyone.
8. The database should have an audit trail for any edits made to the data (this is inbuilt in DHIS). The trail should include original value, date of the change and user details, and a brief explanation of why the change was made.
9. New staff should be taken through an induction program to familiarize them with the HMIS system and data safety features.

ACCESS TO ELECTRONIC MEDICAL DATA SHOULD BE LIMITED
THROUGH PASSWORD PROTECTED USER ACCOUNTS
**
NO DATA SHOULD BE CHANGED OR DELETED
WITHOUT PROPER DOCUMENTATION

3.0 DATA COLLECTION AND REPORTING

3.1 DATA COLLECTION TOOLS

1. HMIS data should be collected using only the standard HMIS tools developed and produced by the MOH As a basic requirement, each health facility should have all the necessary registers and summary sheets *(Tables 1 & 2)*.
2. For ease of reference, and to reduce the overlap of numbering across service delivery levels, data recording tools have a unique number depending on the level of service delivery *(Tables 1 & 2)*.
3. All organizations and implementing partners who provide services via the existing health facilities should use the national HMIS tools for reporting.
4. Existing HMIS tools should not be updated or edited without the approval of the Ministry of Health.
5. For harmonization and standardization, no additional data collection and reporting tools should be introduced without the approval of the MOH.
6. Any changes or updates to the system must be documented as part of the MOH change protocol process.
7. All health workers should be trained on the data collection and summary tools.

Table 1: *DHIS2 Registers (Dec 2021)*

DHIS2 Registers (Dec 2021)	New Label

Hospital Inpatient Register	R 01
OPD Over-5 Register Hospital & HCs	R 02
OPD Under-5 Register Hospital & HCs	R 03
OPD Register PHUs & CH	R 04
Pre-ART Register	R 05-A
ART Register	R 05-B
Immunization (EPI) Register	R 06
Nutrition Register	R 07
Birth Spacing (BS) Register	R 08-A
Antenatal Care (ANC) Register	R 08-B
Labor, Delivery & Maternity Register	R 09-A
Postnatal Care (PNC) Register	R 09-B
Laboratory Services Register	R 10-A
Lab Results Register	R 10-B
LMIS Essential Medicines Hospitals & HCs	R 11-A
LMIS Program Supplies Hospitals & HCs	R 11-B
LMIS Essential Supplies PHUs	R 12
Theater Register	R 13
TB Register	R 14
STI Register	R 15
VCT Register	R 16

Table 2: *DHIS2 Summary Sheets (Dec 2021)*

DHIS2 Summary Sheets (Dec 2021)	**New Label**
Hospital Inpatient Services	MF 01
Hospital Outpatient Services	MF 02
Health Center Outpatient Services	MF 03
PHU / FHW / CHW Services	MF 04
HIV / ART Services	MF 05
EPI & Child Health Services	MF 06
EPI Tally Sheet	MF 07
Maternal & Reproductive Services	MF 08
Mortality	MF 09
Laboratory Services	MF 10
Logistic Data Hospitals & HCs	MF 11
Logistic Data PHUs	MF 12
IDSR Hospitals & HCs	WF 13
DS & TB Services	QF 14
HR & Training	QF 15

Refer to DHIS User & HF Manual for details on how to use the above tool.

3.2 DATA COLLECTION PROCEDURE

HMIS data should be collected from each Hospital, District Hospital, Health Center (HC) and Primary Health Unit (PHU). All staff involved in the collection and management of patient-related information must ensure that data use does not "compromise" patient confidentiality:

1. Client data should initially be captured in the designated patient medical cards / charts by the health care provider.
2. The provider should then immediately transfer the recorded data recorded from the medical form into appropriate register (*see Table 1*).
3. The registers should be updated with each patient visit.
4. Each month should start on a new page of the register.
5. Staff should compile the page summaries at bottom of each fully completed page of the register.
6. At end of each month, staff should add up all page totals for the relevant month to get monthly summary.
7. District / Regional HMIS officers, MOH and IP staff should strengthen this process through routine supportive supervision and continuous mentorship.

Each register and summary sheet has a version number and version date clearly printed on the cover page. This reduces chances of using outdated registers.
The instructions / summary instructions / tables inside the front cover of every register and summary sheet:

1. Describe what data should go into which column or cell
2. State if the tool is to be used together with any other tool e.g., tally sheet.

3.3 DATA REPORTING PROCEDURE

Data should be reported using the designated MOH standard summary sheets. This should be done within the stipulated time to ensure availability of data for timely decision making. Table 3 shows the general data flow for monthly reports and the reporting deadlines.

Table 3: *Flow of Patient Data*

Source	Destination	Deadline
Individual patients	Register	Immediately
Register	Facility Summary Form	End of month
Facility Summary Form	District / Regional HMIS officer	5th day of month
District / Regional HMIS officer	DHIS Platform	10th day of month

<u>At Health Facility Level</u>

1. Health facilities should compile the monthly report in triplicate using data from the page summaries (and EPI tally sheet). This should be done using designated standard monthly summary sheets (Table 2).

2. The staff member completing the monthly summary sheet should indicate his/her name and designation, and sign in the appropriate section of the form.
3. The facility in-charge should cross-check all reports for errors before submitting to the district / regional HMIS officer and use DQA forms and data validation rules as a guide (*Table 6*).
4. If the report has no errors, the in-charge should sign the requisite section of the report. If any errors are identified, request staff member to correct the form and then review again. Ensure all expected reports are prepared for submission.
5. Two copies of the report should then be submitted to the district / regional HMIS officer by the 5th day of each month to enable data entry to DHIS by the 10th of each month.
6. The facility should retain a copy of the report for their records as well as for data quality audits (DQAs) by district/regional HMIS officers, MOH and IPs.

<u>At District Level</u>

1. The district HMIS officer should ensure that s/he has received all expected reports from all functional health facilities in the district and update the district monthly data log (*see Annex 1 for the District Data Log Template*).
2. The HMIS officer should ensure that:
    - All expected reports have been received.
    - All fields in the received health facility reports are filled.
    - Stamp and date all the received reports.
3. S/he should contact any facilities whose reports are either missing or incomplete for clarifications before compiling the district report and update the district reporting performance report (*see Annex 1b*).
4. All data queries should be resolved before submitting the data to the next level, or before entering data into DHIS.
5. The district monthly HMIS report should then be compiled using the standard Excel template. ***Skip this step if using DHIS***.
6. The district monthly Excel file (if used), the district data log and Annex 1b should be submitted to the regional HMIS officer by 7th day of each month.

<u>At Regional Level</u>

1. The regional HMIS officer should ensure that s/he has received all expected reports from all districts in the region and update the regional data log (*see Annex 2 for the Regional Data Log Template*).
2. The HMIS officer should ensure that:
    - All expected reports have been received.
    - All fields in the received monthly reports have been completed.
    - Stamp and date all the received reports.
3. S/he should contact any districts whose reports are either missing or incomplete for clarifications before compiling the regional report.
4. All data queries should be resolved before submitting the data to the next level, or before entering data into DHIS.

5. The regional HMIS report should then be compiled using the standard Excel template. ***Skip this step if using DHIS***.
6. The regional monthly Excel file, copies of district & regional data logs and Annex 2b should then be submitted to the national HMIS office by the 10th day of each month.

At State Level

1. The National HMIS coordinator or his/her designee should ensure that s/he has received all expected reports from all the regions and update the national monthly data log (*see Annex 3 for the National Data Log Template*).
2. The HMIS officer should ensure that:
    - All expected reports have been.
    - All the fields in the received monthly reports have been completed.
    - Stamp and date all the received reports.
3. S/he should contact any regions whose reports are either missing or incomplete for clarifications before compiling the national HMIS report.
4. All data queries should be resolved before commencing data analysis.
5. A national HMIS report should then be compiled and shared with various stakeholders and feedback provided to regions and districts. The analysis is done using DHIS visualization features, such as pivot tables and maps.

Any queries identified after running DHIS validation rules should be discussed with the respective facility/ facilities and resolved:

- HFs should recheck registers and – if required - make necessary adjustments on summary forms.
- Any changes should be documented both on the summary sheet (hard copy) and DHIS (soft copy) for future reference. In DHIS this is done by double-clicking the value that is being modified.

3.4 LATE REPORTS

1. In case of delayed facility reports, the HMIS officer supporting the HF should contact the HF within a day after the deadline and request a status update.
2. If it's not possible to receive the report in good time, the officer should update the data log with the available reports and submit.
3. Reports submitted after the deadline should still be entered into DHIS.

3.5 DATA SUMMARY REPORTS

During the first quarter of each year, a summary report should be compiled for the previous year including:

1. Data summary / Performance data / Findings of interest / DQA highlights.
2. Quality assurance including significant DQA findings, and any quality control measures taken to ensure good quality data.
3. Data graphics / tables / maps / etc. either as part of the report or in appendices.
4. Attached activities reports for more details.

4.0 DATA QUALITY AUDITS

4.1 OVERVIEW

Routine monitoring and supportive supervision activities generate important data for patient care and programme improvement. Data quality assessments help to identify errors and provide information on the facilities' mentorship needs on how to strengthen good data practices.
This SOP contains detailed instructions for conducting HF data quality audits (DQAs). It looks at completeness of data records and compares register records with compiled data on the monthly summary sheets and DHIS reports.
The DQA process verifies key data characteristics and facilitates the process of evaluating data standards. *Table 4* summarizes the various dimensions of data quality.

Table 4: *Data Quality Dimensions*

Characteristics	Definitions
Accuracy	One of the components of data quality which refers to whether data values are the correct / accurate.
Completeness	Measures whether all data fields within a data collection tool / summary sheet have been filled.
Consistency	Logical coherence among related aspects of data. For example, the number of pregnant women given Iron/Folate for treatment should not be greater than number of anemic pregnant women.
Validity	Measures the ability of data to reflect events/outcomes. For example, the screening of a child's nutritional status by other means besides MUAC and Weight/Height is not valid.
Reliability	The extent to which we can rely on the source data, and this evaluates whether data show similar results when indicators are measured more than once, using similar characteristics.

4.2 DQA OBJECTIVES

1. To check data variables for timeliness and completeness.
2. To evaluate data consistency, through comparison of data recorded in the registers with the monthly summary sheets and DHIS online database.
3. To appraise data reliability by comparing data summaries in registers with monthly summary forms.
4. To assess validity of reported data by confirming method of measurement from source documents (and facility staff).
5. To assess the accuracy of data through double checking all data fields against source documents.

4.3 DQA DATA MANAGEMENT

As DHIS data is aggregated from different registers, DQA needs to compare reported data against all sources. Due to time-consuming nature of DQAs (4 hours on average), the DQA team ought to focus on selected data elements for each program area. A sample list of DQA indicators and their source documents are shown in *Table 5*.

Table 5: *Indicators & Corresponding Data Sources per Program Area*

Program Area	Indicator	Registers	Summary Form
OPD	Number of new patients treated at HF this month Number of watery diarrhea cases among U5s Malaria cases confirmed by RDT/slide	R-01 R-02 R-03 R-04	MF-01 MF-02 MF-03 MF-04
Nutrition	Number of children screened for malnutrition Number of U5s moderately malnourished Number of U5s severely malnourished	R-03 R-04 R-06	MF-04 MF-06
ANC	Number of PW with ANC-1 visits Number of PW with ANC-4 visits	R-04 R-08 B	MF-04 MF-08
Deliveries	Number of deliveries in the health facility Number of deliveries monitored with partograph Number of low-birth-weight babies	R-04 R-09 A	MF-04 MF-08
Immunization	Number of children <1 immunized with Penta 1 Number of children <1 immunized with Penta 3 Number of children <1 immunized against Measles	R-04 R-06	MF-04 MF-06
PNC	Number of first PNC checks within 48 hours Number of new mothers counselled on IYCF	R-04 R-09 B	MF-04 MF-08
Laboratory	Number of RDTs for Malaria Number of positive RDTs	R-10 A	MF-10
Dispensary	RDT / ORS opening balance RDT / ORS received 25. RDT / ORS in store	R-11 A R-12	MF-11 MF-12
PMTCT (ANC)	Number of PW counselled and tested for HIV Number of PW with positive HIV test result	R-05 A R-08 A	MF-05 MF-08
HR	Staff who attended RMNCH training	HF Records	QF-15

Note: Registers R-04 & R-12 and Summary Sheets MF-04 & MF-12 are only applicable for PHUs.

Table 6: *Data Validation Rules for DHIS Data Entry*

Form	Value 1	Rule	Value 2
MF-01	Medical/ General Admissions + Surgical Admissions + Maternity/ Gynecological Admissions + Pediatric/ NICU Admissions	=	Total Inpatient Admissions
	Medical/ General Deaths + Surgical Deaths + Maternity/ Gynecological Deaths + Pediatric/ NICU Deaths	=	Total Inpatient Deaths
MF-02 MF-03	OPD curative child new (5-9yrs) + OPD curative child follow-up (5-9yrs)	=	Total OPD Visits Child (5-9yrs)

MF-02 MF-03 MF-04	OPD curative child new (0-59m) + OPD curative child follow-up (0-59m)	=	Total OPD Visits Child (0-59m)
MF-03	Fever case tested for Malaria (RDT / Microscopy)	<	Malaria confirmed & treated (ACT / Primaquine)
MF-04	Fever case tested for Malaria RDT	<	Malaria confirmed & treated (ACT / Primaquine)
	Live birth in community	<=	Delivery in community
MF-05	Antenatal client HIV tested	<=	Antenatal client HIV positive
	Postnatal care HIV tested	<=	Postnatal care HIV positive
MF-06	FACILITY BCG Immunizations (0-11m)	<	FACILITY Measles (0-11m)
	FACILITY Penta-1 Immunizations (0-11m)	<	FACILITY Penta-3 (0-11m)
	MUAC Red + Yellow + Green	=	Child screened MUAC
MF-06 MF-07	Total BCG Immunizations during the month	<=	BCG used this month
MF-08	ANC-1 Visits	<=	ANC-4 Visits
	Delivery assisted vaginal / Delivery Caesarean	<	Delivery normal
	Live birth weight < 2.5 kg	<	Live birth in facility
MF-09	Maternal Death during Pregnancy	<=	Maternal Death Total
MF-10	Total RDT Tests done	>=	Positive RDT Tests
	Total Slide Microscopy done	>=	Positive Microscopy Slides
MF-10 MF-11	Total RDT done	=	RDT used this month

4.4 DQA STANDARD PROCEDURES

Preparing for DQA

The following steps should be completed before conducting the facility DQA and are crucial for a successful DQA:

1. Contact health facility manager in charge to schedule a DQA visit and agree on date, time, and itinerary. Inform IPs about the confirmed date and request their participation.
2. During conversation with HF manager also ensure that all registers / summary sheets / other source documents will be available.
3. Familiarize the DQA team with results from previous DQA assessments at the health facility.
4. Refer to the facility's monthly summary sheets and DHIS data and review the predetermined DQA indicators.

Identify any missing reports / data prior to the planned HF visit. Copies of any missing reports should be delivered by the HF during the DQA visit.

Conducting DQA

1. Brief HF & IP staff about purpose and steps of conducting DQA.
2. Open the DQA tool and enter the facility name, DQA date, and names of the staff conducting the DQA into the appropriate fields.
3. Obtain copies of relevant registers and summary sheets.

4. Start the DQA process addressing all DQA areas documented in *Table 5 & 6*. Allow time for discussions on issues that may arise during the DQA visit.
5. Complete the DQA supportive supervision tool.
6. At the end of the DQA, hold a joint meeting with the facility staff to discuss the results and agree on how to resolve the identified gaps or inconsistencies.
7. A copy of the DQA report with action plan should remain with the HF and IP for reference in preparation for tailored mentorship.
8. The HF should register the visit in their monitoring log which should contain the following information: Date of DQA / DQA score / action points including timeframe when action items should have been addressed.

Following the DQA visit, the team should also summarize their findings through graphs and tables which should be shared with the HF and IP.

These illustrations should also be made available to HF managers who should use these sheets during their presentation of the DQA findings to health facility / clinical staff. Ideally, these pages should be printed out for the facility staff to review and post on their walls.

DQA Timelines

1. DQA visits should ideally be conducted at each facility every 3 months and at a minimum every 6 months as this provides an opportunity to continuously review gaps and weaknesses and their eventual resolution. The following are some of the criteria that ought to be applied:
2. Conduct DQA every 3-6 months (or earlier if an immediate follow-up DQA is required).
3. Data for the current month should not be included in the DQA process since it is likely to be incomplete and therefore not representative.
4. Do however check register entries of the current month for completeness and accuracy.
5. DQA follow-up & action points need to be agreed immediately after completing the DQA exercise.
6. During each DQA exercise, the team should review monthly reports for previous 3 months against source documents, as well as DHIS entries.

District / Regional HMIS officers, program managers, IPs and MOH staff should support and mentor facilities on proper recording and reporting to ensure that all DHIS reports are complete, accurate, reliable, and timely.

4.5 DQA ASSESSMENT REPORT

There should be a written report following each DQA which includes specific guidance for facility staff on how to improve data collection and recording. The report should also indicate the timelines for both priority activities as well as joint follow-up reviews and a scorecard highlighting performance levels.

For the DQA to be helpful to the program and facility staff:

- A written final DQA report should be shared with facility staff within 7 days after the DQA.
- Include DQA reports in quarterly data review meetings and ensure that 2-3 slides in the quarterly data review presentation are dedicated to DQA. The slides should summarize district/regional DQA results and should always include action points.
- After the facility DQA report is shared and discussed with facility staff, mentorship on implementation of corrective activities should be provided by MOH and IP staff. Follow-up and continued mentorship are critical for improving data as well as service provision.

4.6 DQA SCORECARD

To improve the quality-of-service provision and HMIS data, a scorecard has been developed to assess and improve the health services and HMIS data collection. The scorecard is one of the outcomes of a data quality audit and assists in comparative assessment of performance at HF, district, region, and national levels. The scorecard uses data quality aspects from DHIS (timeliness, completeness, data values and data validation rules), HF registers and monthly summary sheets to rate service delivery using a composite index. The latter combines several indicators in a standardized way to assess the overall performance of the HF. The objectives of HMIS scorecard are to:

1. Provide visual presentation of the status/ rating of different indicators.
2. Compares levels of service indicators using a composite index.
3. Highlights differences across HFs/regions etc. for focused mentorship.
4. Encourages competition for service/ data quality across all levels fostering a data use culture.

The HMIS scorecard is generated using the DQA template. The template generates a score for tools in each program area, and an aggregate score for each health facility. The performance results are color-coded into 3 groups as shown in *Table 7*.

Table 7: *DQA/Score Card Color-Codes*

Score	Color	Implication
≤ 50 %	Red	Immediate and intensive mentorship required
50 - 74 %	Yellow	Enhanced mentorship / supportive supervision required
≥ 75 %	Green	Routine Mentorship required

4.7 STAFF ROLES AND RESPONSIBILITIES IN DQA

Collaboration of IPs, district /regional HMIS officers, MOH and HF staff is essential for effective implementation of DQAs. This section describes the roles of each staff category in DQA process.

Health Facility Staff and MOH Managers

- Allocate a date and time for the DQA exercise every quarter and make sure all required data tools are readily available *(all registers in use and the monthly summary forms from the past 3 month)*.
- Notify all HF staff about the exercise and ensure clinical services are not disrupted.
- Ensure as many HF staff members as possible actively participate in conducting DQA.
- Review results and identify measures for improving services/ data.
- Facilitate feedback sessions to share DQA results with all facility staff.
- Maintain a regularly updated log showing DQA dates as well as the respective scores, and the dates feedback was provided to HF staff.

Health Facility Records Officers

- Actively participate in the DQA exercise at HF level.
- Distribute HF DQA reports to clinical staff and discuss strategies for implementing service / data improvement measures.
- Ensure that refresher trainings for health facility staff match the highlighted mentorship requirements and are conducted at regular intervals.

Health Management and Information Officers

- Support regular HF data quality reviews by checking the data submitted via the monthly summary sheets with the source data from registers.
- Discuss and explain DQA findings and data improvement measures with HF staff.
- Compile data DQA reports in collaboration with HF staff and send to program manager for review.

Implementing Partners – Data & Program Officers

- Contact HF in-charge to agree on date and time for DQA exercise.
- Oversee DQA process to ensure:
    - All agreed services / data sources are assessed.
    - HF staff understand the purpose and support the process of DQA.
    - Staff know how to interpret DQA results.
- Review DQA report to ensure service/ data improvement measures are clearly articulated.
- Schedule a meeting with HF management – preferably on the same day or within 3 day of the assessment - to discuss the DQA findings and suggested action points / improvement measures.
- Schedule refresher trainings at regular intervals, ensuring that all HF staff take part and that topics match the DQA findings / mentorship recommendations.
- Submit DQA reports and feedback to regional and national HMIS Officers.
- Prepare quarterly DQA reports including corrective actions taken and share with MOH.

5.0 DATA DEMAND & USE

HMIS data should be presented in a form appropriate to the needs of various stakeholders. As such, data should be analyzed at all levels to generate outputs that can be used to assess/ improve health service delivery as well as plan and monitor programs and services. To achieve this, capacity should be built in data use core competencies.

Descriptive epidemiology covers Time, Place, and Person by using the 5Ws':

What= Health issue of concern

Who = Persons affected

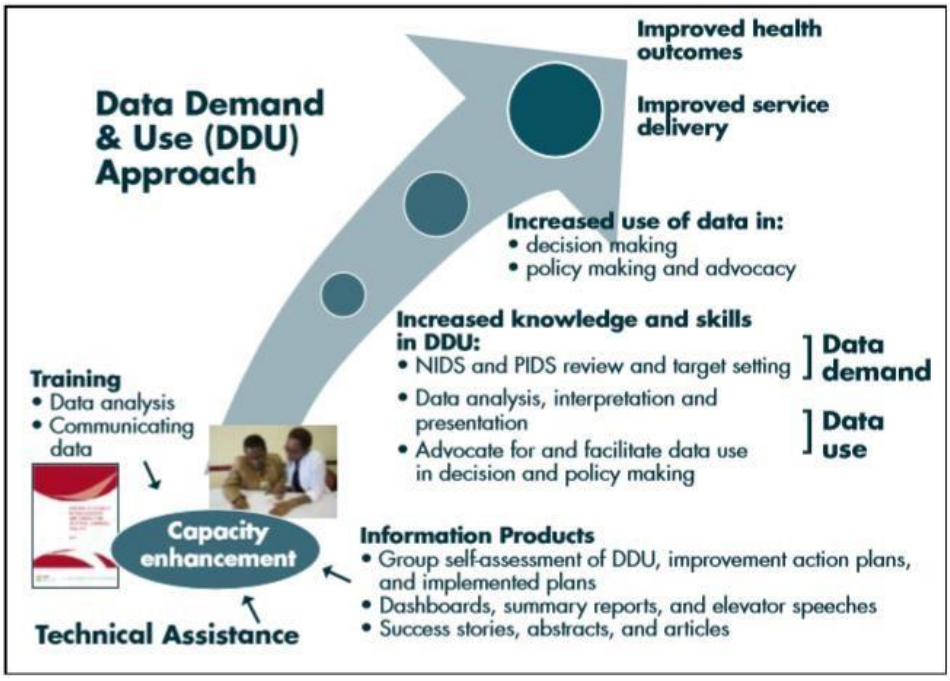
Where = Place or geographical location

When = Time

Why / How = Causes, Risk factors, odes of transmission

Health data should be presented in a way that enables decision makers answer these 5 questions. Data analysis and appropriate presentation is key.

Figure 1 is an illustration of data demand and use (DDU) capacity improvement. The goal of DDU capacity-enhancement efforts is increased data use for decision-making, planning and advocacy, resulting in improved health outcomes.



Source: MEval[2]

Figure 1: *An approach to enhance DDU capacity to improve data demand and use.*

The following procedures are recommended for improving DDU capacity at various levels:

[2] MEASURE Evaluation Technical Brief (Nov 2015).

5.1 DATA UTILIZATION AT FACILITY LEVEL

1. HF staff involved in data management should be trained on basic data interpretation/ analysis and presentation skills.
2. Each HF should identify 5 priority data elements and/or indicators (from the national HMIS indicator list) for tracking and visualization (*Tables 5 & 8*).
3. Each HF should hold monthly data review meetings to review the 5 selected data elements / indicators, prior to submission of their monthly summary sheets.
4. HF data analysis should at a minimum include trend analysis which will also assist HF management in assessing the HF's progress towards set targets.
5. District/ Regional HMIS officers should support each of the HFs in their areas to generate graphs showing monthly trends. to encourage use of data for decision making. If the required hard/ software / Wi-Fi is available at HF level, this should also include capacity building on how to access DHIS and generate HF dashboards and graphics.
6. MOH and IP staff should facilitate quarterly forums where HF staff can present their analysis, exchange lessons learnt and receive feedback.

Table 8: *Somalia National Indicators (Excerpt) – **AVAILABLE IN DHIS***

	Indicator
1	**Antenatal Client 1st Visit Coverage** Numerator: Antenatal clients (ANC) 1st visit Denominator: Estimated number of pregnant women
2	**Antenatal Client Dropout Rate** Numerator: ANC clients 1st visit MINUS ANC Clients 4th visit Denominator: ANC clients 1st visit
3	**Antenatal Client HIV Testing Rate** Numerator: Antenatal clients HIV test done Denominator: ANC clients 1st visit
4	**Skilled Birth Attendant Delivery Rate** Numerator: Deliveries conducted by a skilled birth at health facility Denominator: Estimated number of deliveries / PW
5	**PNC Rate (0-48 hours)** Numerator: Postnatal 1st visits (0-48 hours) Denominator: Total deliveries in health facility
6	**Penta-3 Immunization Coverage** Numerator: Pentavalent 3rd doses (0-11 months) Denominator: Estimated catchment population 0-11 months
7	**Pentavalent Dropout Rate** Numerator: Children <1 who received Penta 1 MINUS Children <1 who got Penta 3 Denominator: Children <1 who received Penta 1 vaccination during the month
8	**Diarrhea Treatment Rate (6-59 months)** Numerator: Children (6-59 months) with diarrhea treated with ORS and/or Zinc Denominator: Children (6-59 months) diagnosed with diarrhea
9	**Malaria ACT Treatment Rate** Numerator: Patients with malaria treated with ACT Denominator: Malaria RDT positive + Malaria microscopy positive + Fever cases
10	**SAM / MAM Rate Assessed with MUAC** Numerator: SAM / MAM children assessed with MUAC Denominator: Children screened using MUAC

5.2 DATA ANALYSIS AT DISTRICT / REGIONAL / NATIONAL LEVEL

5.2.1. Overview

- The goal is that HF data is not just used to gain information but should also be analyzed and fed back provided to facilities at regular (at least quarterly) intervals. It is recommended that DHIS Information products such data dashboards are used during feedback sessions to generate talking points and identify of success stories / areas of improvement as this will improve understanding and action.
- Prior to data analysis, data should however always be checked for quality / accuracy / inconsistency. These quality checks should include checking for missing data, missing reports, numbers outside the expected range (outliers) and any other inconsistencies. Any errors identified should be corrected – IN COOPERATION WITH THE RESPECTIVE HEALTH FACILITY - using the source documents (= registers).
- Data analysis should also always include a
    - Trend analysis (as this will most likely highlight seasonal variations).
    - Performance comparison across geographical regions.
    - Possible causes of the observed trends (simple logistic regressions should be performed to test the strength of any associations).
- Analyses should be shared with relevant stakeholders through meetings, print media and appropriate information products.
- An annual HMIS report should be prepared so that it can also be shared with relevant stakeholders.
- Every 3-5 years, trend reports should be prepared based on comprehensive statistical analysis of HMIS and other relevant data with the objective of to:
    - Show patterns / trends / new characteristics.
    - Demonstrate correlations between different variables.
    - Identify any predictors of disease burdens.
    - Provide data analysis / visualizations in a regional, national, and global context.

IF DQA RESULTS CONSISTENTLY SHOW DATA IS OF POOR QUALITY,
CAUTION SHOULD BE EXERCISED
BEFORE USING SUCH DATA FOR ANY ANALYSIS OR DECISION MAKING

A NOTE ON DATA SECURITY

If HF data is exported for analysis, all patient-identifiers must be removed from the dataset prior to transmission. In exceptional cases where files containing patient identifiers must be shared for off-site analysis, such files must be encrypted, and password protected before transfer. The passwords for these files should be sent to the recipient via a separate communication.

5.2.2 Basic Epidemiological Concepts

MOH and HMIS officers should have a basic understanding of epidemiological concepts and skills as this will help them to analyze and interpret health data. The table below provides an overview / a brief introduction to the basic, relevant terms.

Table 9: *Relevant Epidemiology Terms*

Average	Number expression the central value in a data set which is calculated by dividing the sum of the values by their number. *Example* *The weight of 4 children is 11, 15, 16, 18 kilograms respectively.* *Sum of values = 11+15+16+18 = 60* *Number of children assessed = 4* *Average (weight of 4 children assessed) = 60 / 4 = 15 kilograms*
Completeness & Timeliness	Data completeness refers to the comprehensiveness / wholeness of data; there should be no gaps or missing information for data to be truly complete. Timeliness refers to the availability and accessibility of data for monitoring, analysis and decision making. *Example* *Completeness: MF-03 had 9 sections that should be populated every month. If some sections are blank, then the Health Center Outpatient Services summary sheet is not complete. Another example is - Region A has 21 HCs, so 21 copies of MF-03 are expected every month. If only 18 Forms are submitted, the completeness rate would be 18/21 = [0.857 * 100] = 85.7%.* *Timeliness: If 5 of the 18 reports were submitted after the submission deadline (5th of each month), then the timeliness rate for the month would be (18-5)/18 or 13/18 = [0.722 * 100] = 72.2%.*
Composite Indicator	Composite indicator are mathematical combinations (or aggregations) of a set of indicators from different data sources. *Example* *Body mass index (BMI) is a common composite indicator. It is a measure of body fat based on two variables - height and weight.*
Coverage	(Health) coverage is the proportion / extent to which eligible patients have received an intervention. *Example* *12,000 children under 5-years are living in Village B. If only 6,000 children in Village B have received deworming medication, then the coverage for the deworming service is 6,000/12,000 = [0.5 * 100] = 50%.*
Cumulative	This refers to the process of increasing a quantity by successive additions. *Example* HC A immunized 11 children under-1-year in January; 15 U1's in Feb and 16 U1's in March 2022. In this case, the cumulative number of children receiving immunizations during QTR-1, 2022 is 11+15+16 = 42 children.

Dropout Rate	The dropout rate refers to the number of people that fail to complete a service as recommended. *Example* If 10 children U1 receive Penta-1 and only 5 receive Penta-3 vaccinations, then the dropout rate would be (10-5)/10 or 5/10 = 50%. Similarly, if 20 PW access ANC-1 services but only 5 attend ANC-4 services, the dropout rate is (20-5)/20 or 15/20 = [0.75 * 100] = 75%. A drop-out rate of ≥ 10% suggests a problem with the respective service.
Fraction (= Proportion)	A fraction represents a part of a whole and is also known as a proportion. It describes how many parts of a certain size there are, for example one-half (1/2), two-fifth (2/5) or three-quarters (3/4). The top number is called the "numerator" (= how many parts there are) and the bottom one the "denominator" (how many parts the whole consists of). *Example* *The fraction 5/10 means that we are looking at 5 out of a total of 10 units. 5 is the numerator whilst 10 is the denominator.*
I***ncidence***	An incidence is the occurrence rate or frequency of a disease. *Example* *Village B has a population of 12,000 children under-5. In February 2022, 120 children U5 were diagnosed with measles. The measles incidence rate in the U5 age group during February is 120 / 12,000 = [0.01 * 100] = 1%.*
Indicator (DHIS)	In DHIS, the indicator is a core element of data analysis. An indicator is a calculated formula based on a combination of data elements / category options or constants. *Example* *The indicator "Outpatient Utilization Rate" is calculated by via the fraction of the data element "Total of all OPD visits" (= Numerator) vs the "Total Population (= Denominator).*
Maximum & Minimum	Maximum refers to the highest value in a list of values, whereas Minimum is the lowest value. *Example* *The weight of 4 children is 11, 15, 16, 18 kilograms respectively. In this list the* Maximum / highest value = 18 kilograms. Minimum / lowest value = 11 kilograms.
Median	The median is the middle number in a list of values/ a data sample where the entries are sorted in an ascending or descending order, and it separates the higher half from the lower half. *Example* *The weight of 5 children is 11, 15, 16, 18, 20 kilograms respectively. In this case the median weight is 16 kilograms.*

Mode	Mode is the value that occurs most often in a data set. *Example* *The weight of 5 children in OPD is 12, 15, 16, 12, 20 kilograms respectively. The modal weight is 12 kilograms.*
Percentage	A percentage is a number or ratio expressed as a fraction of 100. *Example* *The fraction 2/5 equals 2/5 * 100 = 40% and 1 percent represents a fraction of 1/100.*
Prevalence	In epidemiology, prevalence is the proportion of a particular population found to be affected by a medical condition / disease at a specific time. It is derived by comparing the number of people found to have the condition with the total number of people studied and is expressed as a fraction or percentage. *Example* *Village B has a population of 12,000 children under-5. In January 2022, 120 children U5 were diagnosed with measles, and another 210 U5s were diagnosed in February. Therefore, by end of February, a total of 330 U5s (120 + 210) had been diagnosed with measles. Assuming all the U5s diagnosed with measles were alive at the end of February, the measles prevalence in Village B would be 330 / 12,000 = [0.0275 * 100] = 2.75 %.*
Proportion (= Fraction)	See description of Fraction.
Range	A range is the area of variation between the upper and lower limits of a data set. *Example* *The weight of 4 children is 11, 15, 16, 18 kilograms respectively.* *Lowest value / weight = 11 kilograms.* *Highest value / weight = 18 kilograms.* *Range of values / weights = 11 – 18 kilograms.*
Ratio	A ration indicates how many times one number contains another. *Example* *If 8 girls and 6 boys have been immunized against measles, then the ratio of girls to boys is 8 to 6 = 8:6.*
Performance	Performance evaluates services delivery against set targets or standards. *Example* *Village B has a population of 12,000 children U5. If only 2,000 children are immunized, the Village B performance in terms of uptake of immunization services would be 2,000 / 12,000 = [0.167 * 100] = 16.7%.*
Trend	Trend is the general direction in which something is developing or changing over time. *Example* *If 50 children U1 received Penta-1 vaccines in January and 80 U1s in February 2022, this is an upward or positive trend.*

5.3 DATA ANALYSIS AND PRESENTATION

The following steps are recommended when preparing for the quarterly data review meetings:

Conduct a Data Quality Check

- Check reporting rates to confirm all reports have been received and are complete.
- Run validation rules to confirm all data fields have been correctly entered.
- If both are acceptable, decide on analysis and presentation plan (*Table 10*).
    - If not drill down to flag HFs with missing reports/ data and data outliers and then contact HF managers to provide/ check correct values from the registers.
    - Proceed with analysis plan one the DHIS data is cleaned (*Table 10*).

Which errors should the HMIS officer correct, and which ones must be referred to HFs for confirmation?

- Questionable results and extreme outliers must not be changed without written confirmation from the managers.

- Corrections should not only be made in DHIS but also on the respective monthly summary forms at the HF level.

- If ≥65% of entries from a HF do not pass validation rules, all data from that HF should be rejected / should not be included in the analysis.

Date Analysis & Presentation

- Tables are the simplest presentation; however, graphs provide better to visualization.
- Aim to provide sufficient details based on the 5W's.
- Provide an interpretation of the data based on the context and, if required, look for additional data to confirm the analysis / hypothesis.

Date of Data Analysis

Since is likely that more recent DHIS data is still being updated by regional and facility HMIS officers, it is advised to document the date of analysis.

Table 10: *Example for HMIS Data Analysis Plan*

Program Area	Program	Indicator	Where & How
HMIS		- HMIS scorecard	Generated by DQA exercise Provide analysis / evidence on data accuracy
Service Uptake	***OPD***	- Average monthly OPD consultations last quarter - OPD workload trend last 12 months - Leading causes of OPD visits & contribution to case load	Available from dashboards and dataset reports
	Inpatient	- Average monthly admissions last quarter - Admissions trend last 12 months - Leading causes of admissions - Leading cause of death in hospitals	Available from dashboards and dataset reports
Child Health	***EPI***	- BCG coverage (incl. missed opportunities – Birth / Polio) - Penta dropout rate - Measles coverage - Vaccine wastage rate	Available from dashboards and dataset reports
	Diarrhea	- Average monthly diarrhea cases and 6-monthly trend - Proportion of OPD visits related to diarrhea - Percentage of U5s with diarrhea treated with Zinc / ORS	Available form dashboards and dataset reports
	Pneumonia	- Average monthly pneumonia cases and 6-monthly trend - Proportion of OPD visits related to pneumonia - Percentage of U5s with pneumonia treated with antibiotics	Available form dashboards and dataset reports
	Nutrition	- Number / Percentage of U5s screened for nutrition status - Percentage of MUAC Red / Yellow / Green - Percentage of SAM / MAM referred for management - Percentage of children U5 provided with Vitamin A - Percentage of children U5 dewormed	Available form dashboards and dataset reports

Program Area	Program	Indicator	Where & How
Maternal Health	***ANC***	- ANC coverage - ANC 4+ completion rate - ANC dropout rate	Available form dashboards and dataset reports
	Delivery	- Delivery coverage in HFs - Skilled birth attendant delivery rate - Percentage of births monitored with partograph - Low birth weight rate	Available form dashboards and dataset reports
	PNC	- Post-delivery uterotonic use rate - PNC-1 (0-48 hours) coverage - Breastfeeding within one hour rate	Available form dashboards and dataset reports
	FP	- Percentage of WCBAs counselled on modern BS - Modern BS new / repeat user rate - Percentage of HFs with stock-out of any FP commodities	Available form dashboards and dataset reports
	EPI	- TT coverage among pregnant women - TT coverage among women of childbearing age	Available form dashboards and dataset reports
Community Health	***OPD***	- Curative care consultation rate child / adult last quarter - Household visit rate per FHW - Malaria / Diarrhea / Pneumonia treatment rate child	Available form dashboards and dataset reports
	Maternal Health	- Antenatal client referral rate - Home deliveries - Postnatal visit new mother/ newborn within 48 hours	Available form dashboards and dataset reports
	Nutrition	- MUAC screening rate U5s / PLW - MUAC Red / SAM rate U5s / PLW - Vit A Supplementation rate - Deworming rate	Available form dashboards and dataset reports

Program Area	Program	Indicator	Where & How
Individual Diseases	***HIV***	- Clients counselled on HIV incl. VCT, OPD, ANC, Delivery - HIV tests performed - HIV test positivity rate - ART coverage	Available form dashboards and dataset reports
	TB	- TB case rate per 100,000 population - TB new pulmonary cases bacteriologically confirmed - TB treatment success rate - TB drug-resistant cases per 100,000 population	Available form dashboards and dataset reports
	Malaria	- Malaria incidence rate (confirmed) per 100,000 population - Malaria suspect / fever test rate - Malaria RDT testing rate - Malaria test positivity rate - Malaria ACT treatment rate - Malaria ANC LLIN distribution rate	Available form dashboards and dataset reports
Miscellaneous		- Progress towards program targets: Monthly progress Progress trend Cumulative progress	Available form dashboards and dataset reports

6.0 RESPONSIBILITIES FOR INDIVIDUAL STAFF CATEGORIES

To ensure adherence to the standard operating procedures, some recommendations are summarized in the below table.

Table 11: *Responsibilities per Staff Category*

Health Facility Staff	Appoint a focal person for HMIS data reporting to ensure: • Accurate data generation • Timely submission of monthly reports • Data visualization & analysis • Data use for program monitoring & decision making
HMIS Officers	• District HMIS officers to support & mentor health facility staff • Regional HMIS officers to support & mentor district / HF teams • State HMIS officers to support & mentor regional teams • Active participation in the DQA process
Implementing Partners	• Active participation in the DQA process • Provide feedback to supported HFs • Encourage HF staff to use data for monitoring / planning • Support MOH through mentorship and training
Ministry of Health	• Ensure standard data tools are available at HF level • Ensure staff are adequately and sufficiently trained • Routinely sharing data with partners and stakeholder • Oversee periodic review and update of DHIS / tools / SOPs

7.0 FUTURE CONSIDERATIONS

7.1 HMIS UPDATE

During the 2021 DHIS revision and update, reporting tools have been simplified, integrated, and merged to ensure harmonized reporting and standardized data collection and to abolish parallel / vertical reporting structures.

7.2 ELECTRONIC DATA CAPTURE

The future vision and next step are electronic medical registers (EMRs with traditional paper registers either partly or completely replaced by their electronic versions. EMRs have the advantage of speed, accuracy, and efficiency. They are also easy to update and minimize data compilation errors and the elimination of printing registers regularly is beneficial with regards to both costs and the environment.

Prior to the introduction of EMRs, a readiness assessment will be conducted evaluating the following points:

1. The electronic patient data system should be compatible with DHIS and allow easy / automated data flow as required.

2. Electronic patient data capture systems should reflect the layout and design of hard copy documents = registers to minimize data entry errors.
3. Electronic systems should include data validation, range checks and consistency checks to ensure good data quality.
4. The system should be secure to prevent unauthorized access to the data.
5. The system should have automated levels of access and privileges allowing the customization of relevant functions for individual users.
6. The system should automatically record user IDs, time and data stamps at the time of data entry to enable data audits.

8.0 ANNEXES

ANNEX 8.1: DISTRICT DATA LOG

Name of District:		Month & Year of report:	
Name of Region:		Number of health facilities that have submitted reports:	
Number of registered health facilities:		Number of HFs with incomplete reports:	
Number of functional health facilities:		Number of HFs with missing reports:	

	Expected Reports for calendar month (Yes = 1 / No = 0)														**Received Reports** for calendar month (Yes = 1 / No = 0)														**Complete Reports** (Yes = 1 / No = 0)														**Total**			
Health Facility Names *(Include all HFs in District)*	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	Received	Missing	Complete	Incomplete

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.1 b: DISTRICT PERFORMANCE

Name of District:		Number of operational health facilities in the district:	
Name of Region:		**INSTRUCTIONS:** Please type T for timely reports / L for late reports / N if a facility did not submit any reports	
Number of registered health facilities in district:			

Health Facility Names *(Include all HFs in District)*	**Year:**												**Completeness**	**Timeliness**
	Jan	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***		
Total Expected Reports (E)														
Total Received Reports (R)														
Total Timely Reports (T)														
Total Late reports (L)														

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.2: REGIONAL DATA LOG

Name of Region:		Month & Year of report:	
Number of registered health facilities:		Number of districts with missing reports:	
Number functional heath facilities:		Number of health facilities that submitted reports:	
Number of HFs that submitted reports:		Number of health facilities with missing reports:	

District Names *(Include Districts in the Region)*	**Expected Reports** for calendar month (Yes = 1 / No = 0)														**Received Reports** for calendar month (Yes = 1 / No = 0)														**Complete Reports** (Yes = 1 / No = 0)														**Total**			
	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	Received	Missing	Complete	Incomplete

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.2 b: REGIONAL PERFORMANCE

Name of Region:		**INSTRUCTIONS:** Please type T for timely reports / L for late reports / N if a district did not submit any reports
Number of Districts in Region:		

District Names *(Include all Districts in the Region)*	**Year:**												**Completeness**	**Timeliness**
	Jan	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***		
Total Expected Reports (E)														
Total Received Reports (R)														
Total Timely Reports (T)														
Total Late reports (L)														

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.3: NATIONAL DATA LOG

Number of registered health facilities:		Month & Year of report:	
Number of functional health facilities:		Number of regions / districts / HFs with missing reports:	
Number functional heath facilities:		Number of health facilities with missing reports:	
Number of HFs that submitted reports:		Number of health facilities with incomplete reports:	

Region Names *(Include all Regions)*	**Expected Reports** for calendar month (Yes = 1 / No = 0)														**Received Reports** for calendar month (Yes = 1 / No = 0)														**Complete Reports** (Yes = 1 / No = 0)														**Total**			
	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	MF-01	MF-02	MF-03	MF-04	MF-05	MF-06	MF-07	MF-08	MF-09	MF-10	MF-11	MF-12	QF-14	QF-15	Received	Missing	Complete	Incomplete

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.3 b: NATIONAL PERFORMANCE

Number of Regions:		**INSTRUCTIONS:** Please type T for timely reports / L for late reports / N if a district did not submit any reports

Region Names *(Include all Regions)*	**Year:**												**Completeness**	**Timeliness**
	Jan	***Feb***	***Mar***	***Apr***	***May***	***Jun***	***Jul***	***Aug***	***Sep***	***Oct***	***Nov***	***Dec***		
Total Expected Reports (E)														
Total Received Reports (R)														
Total Timely Reports (T)														
Total Late reports (L)														

Log completed by: _____ Date:

Designation: _____ Signature:

ANNEX 8.4: DQA TEMPLATE

NAME OF HEALTH FACILITY	
DATE OF DQA	
NAMES OF STAFF CONDUCTING DQA	

Please complete the below table below using values obtained from HF registers, monthly summary forms and the DHIS. Indicate analysis (%) in the last 2 Columns if values in the 3 sources are available.

Program	Indicator	Register	Form	DHIS	Available	Matching
OPD	New patients treated at HF this month U5 watery diarrhea cases RDT/Slide confirmed Malaria cases					
Nutrition	Children U5 screened for malnutrition U5 MAM cases U5 SAM cases					
ANC	ANC-1 visits ANC-4 visits					
Deliveries	Deliveries in the health facility Deliveries monitored with partograph Low-birth-weight babies					
Immunization	Children U1 immunized with Penta-1 Children U1 immunized with Penta-3 Children U1 immunized against Measles					
PNC	PNC-1 checks within 48 hours New mothers counselled on IYCF					
Laboratory	RDT tests for Malaria Positive RDT tests					
Dispensary	RDT / ORS opening balance RDT / ORS received RDT / ORS in store					
PMTCT (ANC)	PW counselled & tested for HIV PW with positive HIV test results					
HR	Staff trained on RMNCH topics					
HMIS	Timeliness Reporting Rate Validation Passes (DHIS validation rules) DQA Score supportive supervision visits					

SUMMARY

Total indicators selected	
Total indicators with available entries (# and %)	
Total indicators with matching entries (# and %)	

In absence of complete DQA, DHIS validation rules, and reporting & timeliness rates should be used to assess the data quality. The score is then the average of the two values.
During HF DQA, please do a visual inspection of all the forms submitted and identify the proportion of missing data elements, and check for delays in data entry based on DHIS records and the date recorded on the monthly summary forms.

ANNEX 8.5: DQA LOG

This log should be maintained for every HF / District / Region, and an overall one for national level DQAs. It should be updated every time a DQA is conducted so that quality trends can be tracked at all levels. This log should be completed and reviewed together with the DQA template.

HF / DISTRICT / REGION _____

DQA LEVEL (tick one): HF [ ] District [ ] Region [ ] National [ ]

DQA TEAM MEMBERS

_____

_____

_____

DQA Date	Feedback Date	DQA Score	Timeliness (%)	Reporting Rate	Key Action Points		Next DQA date
					Description of Key Action Points	*Date Resolved*	

ANNEX 8.6: SCORECARD

Enter % values that were available and / or matching for every program area, and the % of validation rules passed per program area.

The final score is the average of all entries in Column I and should be coded Red, Yellow, or Green as shown in the table at the bottom of the page.

Note: This scorecard is used to assess the status / quality of HMIS data, however, scorecards can also be used to assess the quality of clinical services and overall performance of a program.

Program	Register vs Forms		Forms Vs DHIS		Overall			
	Available	Matching	Available	Matching	Available	Matching	Validation	Overall
A	*B*	*C*	*D*	*E*	*F* = (B+D)/2	*G* = (C+E)/2	*H* (%)	*I* (F+G+H)/3
OPD								
Nutrition								
ANC								
Deliveries								
Immunization								
PNC								
Laboratory								
Store								
PMTCT - ANC								
Timeliness								
Reporting								
Validation								
DQA Score								
Average								

DQA Score Card Color-Codes

Score	Color	Implication
≤ 50 %	Red	Immediate and intensive mentorship required
50 - 74 %	Yellow	Enhanced mentorship / supportive supervision required
≥ 75 %	Green	Routine Mentorship required

ANNEX 8.7: SUPPORTIVE SUPERVISION TOOL

ANNEX 8.8: DATA VISUALISATION

See DHIS2 Trainers' Manual:

- Section 2 – Trainers Guide to Data Visualizer *(p 5-18)*
- Section 3 – Pivot Tables *(p 19-42)*
- Section 4 – Maps *(p 43-69)*
- Section 5 – Dashboards *(p 70-80)*

ANNEX 8.9: MENTORSHIP GUIDELINES

BACKGROUND

The Somali health sector is committed to high quality health services provision. The latter depends on good quality monitoring systems, including adequate documentation tools, trained medical / HF staff and resources for monitoring and supportive supervision of health programs. Ideally, supportive should also include a mentorship program which fosters the capacity of the health staff to respond to the health needs of their catchment populations.
This section provides is meant to server as a first step and guide towards a mentorship program for staff members who are part of health systems monitoring and evaluation.

HIGH-QUALITY MONITORING & EVALUATION ARE NOT ONLY A DONOR REQUIREMENT.

IT IS HOW THE IMPACT OF INTERVENTIONS IS MEASURED AND
THE ACHIEVEMENTS OF TARGETS IS ASSESSED.

Supportive supervision and mentorship are a joint effort / partnership between the mentor and his/her mentee to improve motivation, knowledge, skills, and performance. Although mentorship and supportive supervision have several commonalities, the former is generally less hierarchical, more hands on and improves skills of health workers while producing significant improvement in the capacity of the health worker – and hence the health facility - to achieve their aims. Mentorship is a relationship between a mentor and mentee to bring about exchange of learning and cause development. Required systems and skills include data collection & collation, data validation, analysis & interpretation as well as data visualization and dissemination.

ENABLING HEALTH WORKERS TO COLLECT & USE DATA
TO GUIDE PROGRAMS AND POLICIES.

GOALS AND OBJECTIVES OF MENTORSHIP

The **goal** of mentorship is to provide health workers with the necessary knowledge and skills to undertake appropriate tasks required for effective running of health facilities and systems.

The **objective** of mentorship is to improve the knowledge & skills of health workers on

1. Assessing data systems at health facilities.
2. The importance of data and information.
3. Simple data analysis to provide information for decision making.
4. Data visualization & presentation.

Mentoring staff is **important** as it

- Contributes to the development of the organization's talent.
- Helps new staff members adjust quickly to a new role and organizational culture.
- Promotes diversity.
- Provides a broader perspective on the challenges facing staff at all levels.
- Creates a greater sense of involvement.
- Supports an innovative working environment.

Effective mentors
- Serve as a role model for effective organizational behaviors and attitudes.
- Give actionable advice and feedback.
- Resist the temptation to solve the problems of their mentees.
- Challenge the people they mentor to develop a plan for success.
- Create a foundation of support.
- Suspend judgment.

MENTOR AND MENTEE

Who can be a mentor?

Anyone who has undergone the necessary mentorship training, has knowledge, skills, and experience in the required field and possesses the characteristics of an effective mentor (*see above*).

Characteristics of a Mentee
- Able to accept constructive criticism.
- Transparent and sincere.
- Asks relevant questions to improve his/her knowledge, skills, and performance.
- Keeps his/her work supervisor informed on progress.
- Documents progress made during the mentorship program.

MENTORSHIP PROCESS

Preparing for a Mentorship
- Schedule of regular meetings to be agreed between mentor and mentee with approval of facility manager in charge.
- Prepare for the topic of the planned visit e.g., hand-outs, exercises, tools.

How to mentor
- Listen & communicate effectively.
- Acknowledge achievements.
- Identify areas of strengths and weaknesses.
- Identify challenges and opportunities in the work environment.
- Identify appropriate resources and give tips on how to utilize these resources.

HMIS MENTORSHIP

How to mentor health workers on data monitoring

Data system mentorship fosters continuous capacity building of health workers on the upkeep of high-quality data records and reports as well as their dissemination and use.

Prior to mentorship commencing

- Assess needs based on DQA and HF assessment reports.
- Identify staff and specific topic requiring capacity building.
- Identify a mentor for the required topic from the in-country team.
- Agree on date & topic of mentorship visit with facility manager in charge.
- Ensure relevant staff are available and can dedicate at least 2-3 hours.
- Ensure necessary resources are available (Wi-Fi, computer, etc.)
- Prepare a short exercise to improve skills ideally with data from the respective HF.

At the time of the first mentorship visit

- Prepare for the topic of the planned visit e.g., hand-outs, exercises, tools.
- Plan to reach the facility well in advance to allow at least 2-3 hours of dedicated time with the relevant staff member(s).
    - On arriving at the health facility:
    - Introduce yourself, by name and designation, to the HF manager and staff.
    - Inform them about the purpose of the visit.
    - Obtain staff names and designation especially the HMIS data point person.
    - Agree on point person (HMIS officer / nurse) with who will be the mentee.
    - Review tools and ensure all needed registers are available.
    - Perform a quick DQA and assess data tools, data flow, monthly data reports, data display and use.
    - Identify and agree on strengths and weaknesses.
    - Develop a work plan for the mentorship and improvement plan with timelines.
    - Debrief with all staff.
    - Agree on next visit date and areas for mentorship.

After mentorship visit

- Prepare mentorship visit report, attaching the agreed mentorship plan.
- Follow-up on mentorship plan and prepare for next visit.
- Provide a progress report at quarterly review meetings.